Undue Diligence

David Andolfatto
Federal Reserve Bank of St. Louis

Aleksander Berentsen
University of Basel

Christopher Waller
Federal Reserve Bank of St. Louis

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The broader issues (ongoing research)

We want to understand the nondisclosure practices of financial agencies; e.g.

- mark-to-model over mark-to-market valuation methods
- central banks and bank regulators that withhold information

Since at least Hirshleifer (1971), we know that more information is not always welfare improving

- theory of the second-best (Lipsey and Lancaster, 1956)

The specific questions (today)

Under what conditions are disclosure policies (e.g., FASB Rule 157) a good idea? Is some degree of opacity necessarily a bad property for exchange media?

- One desirable property of money/collateral is whatever discourages due diligence (the need to inspect destroys liquidity value)

- Gary Gorton calls an asset with this property "informationally insensitive"

  – does not mean "risk free;" rather, it means that agents have little incentive to gather private information

- Examples: USD, UST, private banknotes, and (until recently) AAA tranches of MBS in repo market (contrast these to equity)

The basic environment

- Time is discrete, horizon is infinite, each time period divided into 2 sub-periods, labeled *day* and *night*

- An equal measure of two types of agents: buyers and sellers with preferences

$$W_b = E_0 \sum_{t=0}^{\infty} \beta^t \left[y_{b,t} + u(q_{b,t}) \right]$$

$$W_s = E_0 \sum_{t=0}^{\infty} \beta^t \left[y_{s,t} - h(q_{s,t}) \right]$$

- There is an asset (a Lucas tree) that generates a stochastic flow of non-durable output $z_t \in \{z^l, z^h\}$ at the beginning of each day

- Society has a machine that generates information at zero cost; can be turned ON or OFF

- If ON, information arrives each *night* and forecasts the future dividend (the *next day*) with exact precision

- Hence, information is either "good news" (z^h) or "bad news" (z^b) at night

- Let $\pi \equiv \mathsf{Pr}\left[z_t = z^h\right]$ and let $\bar{z} \equiv \pi z^h + (1-\pi)\, z^l$

- Agents are centrally located during the day, but disperse to form random pairwise meetings at night

- Agents meet someone with probability one, but never meet the same person again (rules out bilateral credit relationships)

- An allocation (stationary) is denoted (q_j^i, y_j^i) for $i = l, h$ and $j = s, b$

- Feasibility requires

$$q_s^i = q_b^i = q^i \text{ for } i = l, h$$

$$y_s^i + y_b^i = z^i \text{ for } i = l, h$$

- Note: if information switch is turned OFF, then $q^i = q$ for $i = l, h$

First-best allocation

- Night allocation is independent of news

$$u'(q^*) = h'(q^*)$$

- In the day, any division of expected utility that is feasible and does not violate *ex ante* participation constraints

$$\bar{y}_s + \bar{y}_b = \bar{z}$$

- where $\bar{y}_j = \pi y_j^h + (1-\pi) y_j^l$ for $j = s, b$

Incentive-feasible allocations (limited commitment)

- We restrict attention here to $q^i = q$ for $i = l, h$ (w.l.o.g.)

- Sequential participation constraint for seller at night:

$$-h(q) + \beta(\bar{y}_s + V_s) \geq 0 \text{ where } V_s = \left[\frac{-h(q) + V_s}{1 - \beta}\right]$$

- This reduces to

$$S = \{(q, \bar{y}_s) : -h(q) + \beta \bar{y}_s \geq 0\}$$

- S is non-empty and strictly convex

- Sequential participation constraint for buyer in the day:

$$y_b^i + u(q) + \beta V_b \geq 0 \text{ where } V_b = \left[\frac{\bar{y}_b + u(q)}{1-\beta}\right] \text{ for } i = l, h$$

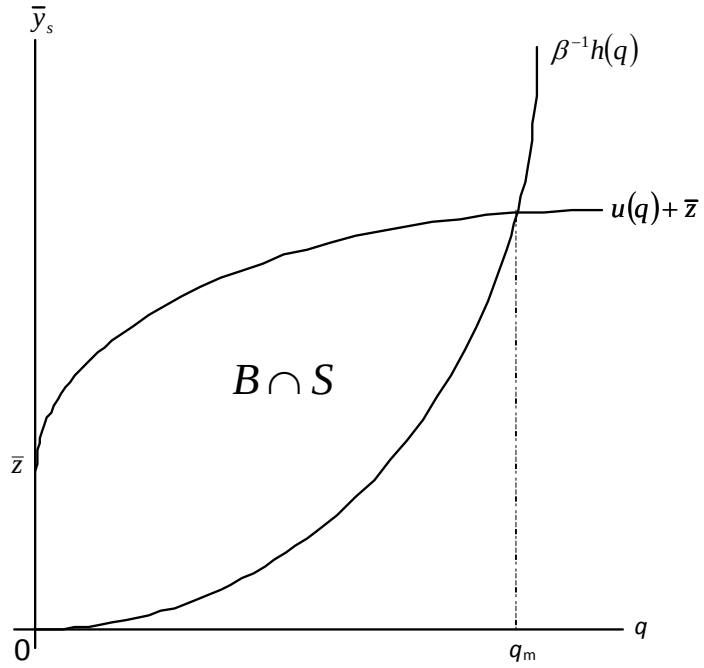
- This reduces to

$$B = \{(q, \bar{y}_s) : \bar{z} + u(q) \geq \bar{y}_s\}$$

- B is non-empty and strictly convex

- Hence, the set of incentive-feasible allocations $S \cap B$ is non-empty and compact

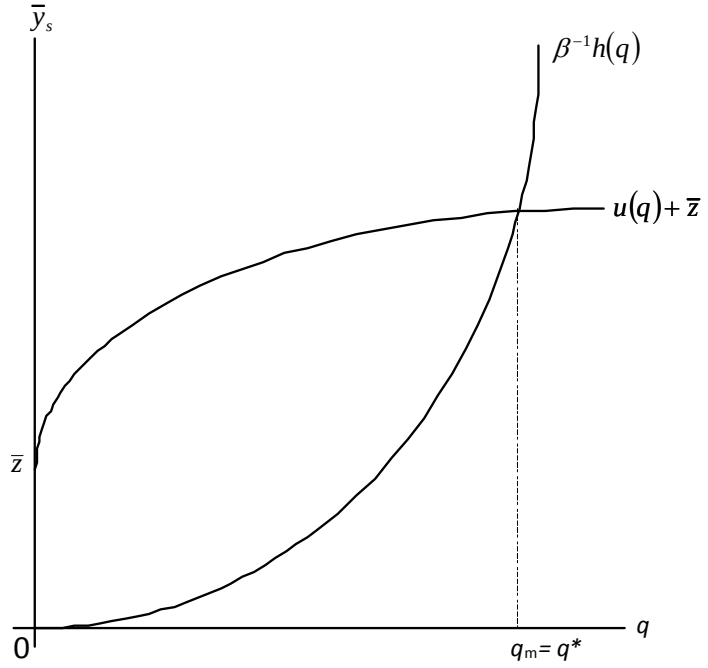
- Define q_m such that $\beta^{-1}h(q_m) = u(q_m) + \bar{z}$



Set of incentive-feasible allocations

- Can implement any $q \in [0, q_m]$

- A convenient parameter restriction



[A1]: Choose $\beta = \beta^*$ such that $(\beta^*)^{-1}h(q^*) = u(q^*) + \overline{z}$

We show the following

- If $\beta \geq \beta^*$, then first-best is implementable
- If $\beta < \beta^*$, then constrained-efficient allocation is $q^l = q^h = q_m < q^*$
- Efficient implementation generally requires information switch turned OFF

  $\Rightarrow$ a form of "opacity" over future asset returns is desirable
- Turning information switch ON implies that debt-constraints bind more severely in bad-news states (a cost that is not offset in good-news states)

An extension: A technology for personal (private) information gathering

- Our "news" has no social value and is potentially harmful when commitment is limited

  $\Rightarrow$ this information should be suppressed

- But what if agents can discover this information for themselves?

- From a societal standpoint, generating private information in this environment hinders efficient implementation

  $\Rightarrow$ for this reason, we label such activities "undue diligence"

- Assume that sellers can generate (private) information over news at night

  $\Rightarrow$ this corresponds to inspecting the fundamental value of an underlying asset, before accepting it as payment

  $\Rightarrow$ if news is bad, society is expected to have a more difficult time rewarding sellers the next day

  $\Rightarrow$ seller may not want to produce a high level of q if news is bad (will want to discount the asset; i.e., purchase it at a "firesale" price)

- Private information acquisition is unobservable and has utility cost γ

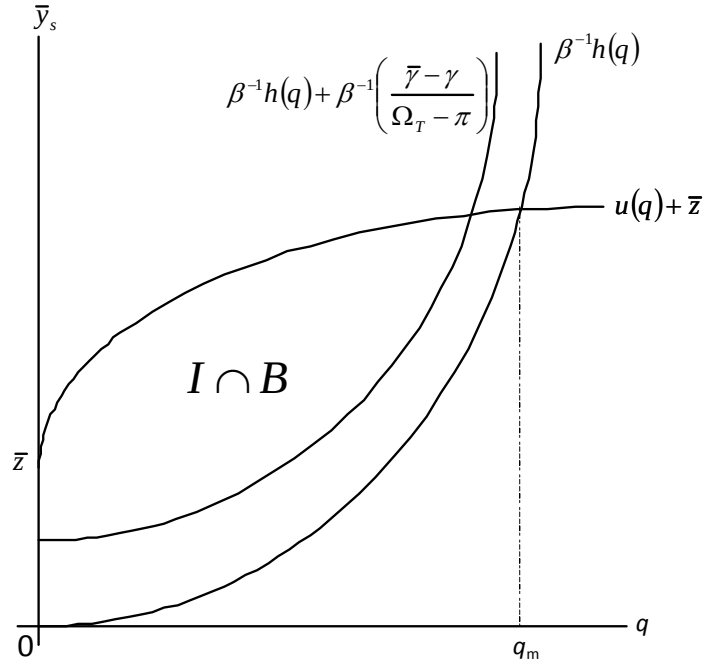
The no-inspection-condition (NIC)

- For sufficiently small γ, seller may want to inspect asset if asked to produce large q
- Seller can be dissuaded from inspecting by lowering q (i.e., it costs almost nothing to produce $q \approx 0$
- For news-independent allocation, NIC is given by:

$$-h(y) + \beta\left(\bar{y}_s + V_s\right) \geq -\gamma + \pi\left[-h(q) + \beta\left(y_s^h + V_s\right)\right] + (1-\pi)\beta^T V_s$$

- Conditional on inspecting, allocation is accepted only in the event of good news

The NIC restricts the set of implementable allocations



Incentive-feasible news-independent allocations when $\gamma < \overline{\gamma}$.

- Proposition: If $\gamma < \bar{\gamma}$ and $q_m = q^*$ ($\beta = \beta^*$), then first-best is not implementable.

- However, it is not clear that a news-independent allocation is constrained efficient

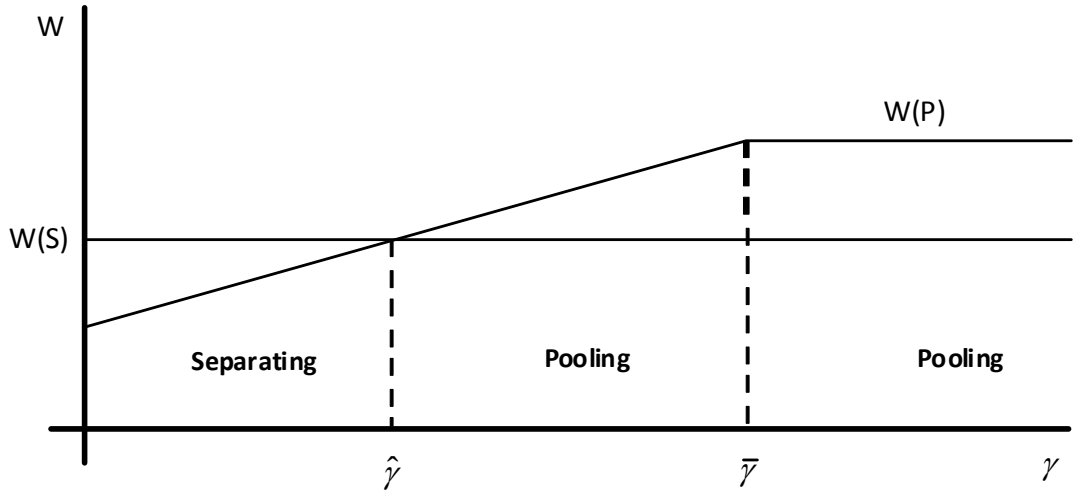
  $\Rightarrow$ for sufficiently low γ, it may be too costly to dissuade inspection (the required q is very low)

  $\Rightarrow$ a news-contingent allocation may dominate (e.g., as it must, for $\gamma = 0$)

  $\Rightarrow$ this means turning the information switch ON (making the asset transparent)

- This implies a large volume of trade when news is good, and a collapse in trade volume in bad news events (financial crisis)

Our results in a nutshell



- Ironically, disclosure policies like FASB Rule 157, should be imposed only when it is easy for 3rd parties to discover information on their own

Conclusions

- Formalized the idea of "opacity" being a desirable characteristic of exchange media under some circumstances

- Provide a general principle governing the use of legislation designed to promote information disclosure

  - information disclosure policy a good idea when private information acquisition costs are low

- Not entirely sure how to relate this to financial crisis and collapse of repo market (Gorton hypothesis), but we are working on some ideas...

The Gorton Hypothesis

- In January 2006, Markit Group (financial information services company) launched a product called the ABX.HE index
  - a credit-derivative index containing 20 equally weighted subprime backed short-term bonds, each of different risk-return ratings
  - allowed agents to price and trade subprime risk (and to short the subprime market)
- The market price of this index aggregated and communicated market views on MBS (previously, people had to guess what others thought)

- Think of ABX.HE event corresponding (loosely) to a surprise drop in our model γ (from above $\hat{\gamma}$ to below $\hat{\gamma}$)

- Informationally insensitive securities are now suddenly informationally sensitive

  - people now have an incentive to gather private information over MBS circulating as collateral in repo

  - this is no big deal, as long as news remains good (rising home prices), but when news suddenly turns bad...

- Coincidentally (?) FASB 157 issued in Sept 2006, effective Nov 2007

Another interpretation...

- Forget about ABX.HE
- Assume $\hat{\gamma} < \gamma$
- Consider FASB 157 as exogenous event (together with bad news)
- This view squares with former FDIC Chair (William Isaac) that much of the blame of the subprime mortgage crisis rests with the SEC and it's fair market accounting rules (esp. in relation to banks forced to mark down MBS assets)